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### (54) Music on demand from the Internet

(57) A system and method for delivering programmed music and targeted advertising messages to Internet based subscribers includes a software controlled microprocessor based repository in which the dossiers of a plurality of the subscribers are stored and updated, musical content and related advertising are classified and matched. A subscriber has an appropriate microprocessor based device capable of selecting information and receiving information from the Internet. The subscriber receives the programmed music and matched advertisements from the repository over the Internet.

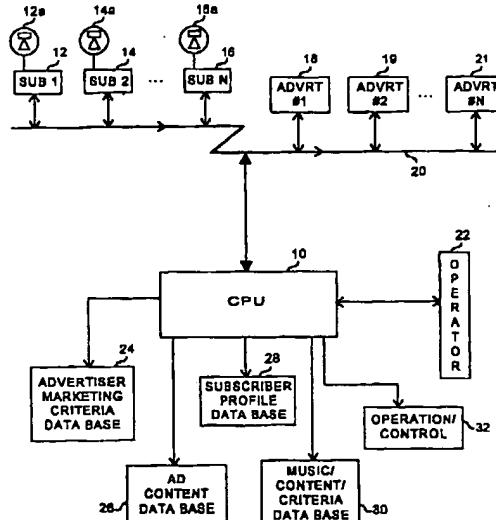


FIG. 1

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**Description****BACKGROUND OF THE INVENTION**

The present invention relates to a method and apparatus for transmitting and receiving programmed music to and from the Internet to subscribers Of the programmed music, where the programmed music received by the subscribers includes targeted advertising according to predetermined criteria.

Public and network television and radio stations have for decades distributed proprietary copyrighted subject matter to the viewing and listening public without any charge due to the sponsorship and financing of these programs by various advertisers and/or governmental bodies. With television and radio broadcast, it is difficult if not impossible to deliver specific advertisement messages to finely selected audiences since audience targeting is possible only on the basis of broad geographical areas, e.g. the city of New York. It is impossible to target individuals, or individuals who share a common trait, e.g. a certain age range, educational background, etc.

In contrast, the Internet communicates (at least along a portion of its path) over personal communication lines, i.e. the telephone. This enables sending of tailored messages between the ultimate recipient of specific information and the source of the information, e.g. a website, an Internet Service Provider, etc. Traditionally, proprietary, e.g. copyrighted, information could be downloaded from the Internet. In most cases, charge accounts are established with an Internet Service Provider and the recipient of the proprietary data content pays for those services and/or information.

It is desirable to provide an Internet based system for the dissemination of valuable proprietary information free of charge, just as it is provided through network television and radio stations without any costs to the ultimate user/subscriber and with advertiser sponsorship thereof targeted to the subscriber.

**SUMMARY OF THE INVENTION**

Accordingly, it is a general object of the present invention to provide programmed music via the Internet to numerous subscribers without any charge to the subscribers.

It is a further object of the invention to provide programmed music to the general public in a manner which facilitates the bundling of such programmed music with advertisement copy tailored to the individual, to thereby underwrite the cost of supplying to members of the public valuable music and other data containing information.

It is a further object of the invention to provide advertisers a method of targeting music consumers meeting a profile designated by the advertiser which assures that the targeted music consumer receives a

message tailored for such consumer.

It is a further object of the invention to provide a system of the above type which is easy to use and implement.

The foregoing and other objects of the invention are realized in accordance with a preferred embodiment of the present invention which includes a software-controlled and microprocessor-based repository in which the dossiers of a plurality of subscribers are stored and updated. Subscribers use their own microprocessor-based systems to receive the programmed music and advertisements from the repository over the internet via their PCs.

The system handles advertisers by creating advertiser dossiers containing the amount of advertising time purchased by each advertiser, the amount used up and the amount remaining to be used ("available allocation"). The advertiser dossiers also contain specification of the desired consumer profiles to be targeted, specification of the category of products or services to be advertised, specification of any territorial or local time requirements or preferences, and a key to the location of the audio advertising content.

The present invention includes a repository, i.e. database, in which all musical content is stored and updated in either or both digital or analog form. Each item of music content is cataloged, defining the nature or category of the contents, the identity of the copyright holder or holders, the characteristics of the desired consumer or subscriber, the category of any product or service the advertising for which is not to be annexed to the content, and any limitation on the availability of the content. The content is converted to digital form for delivery over the Internet. The content may further be encoded to prevent unauthorized duplication and to identify the subscriber to whom the content is to be delivered.

The database also includes the identity of each copyright holder of the music content and an audio message identifying the artist and/or the copyright holders of each item of music content ("identity audio message").

A separate database is used to store and update the advertising content, again in either digital or analog form, later to be linked and transmitted to the ultimate consumer/subscriber. The advertisements are converted to digital form for delivery as audio messages over the Internet. The audio content of the database may include generic audio messages.

In operation, the subscriber selects the content which he or she desires to receive, and the content is placed in a queue for transmittal to the subscriber. Based on the profile of the content, a determination is made by the CPU based system as to which advertising copy -- there may be many different ones -- is appropriate to be delivered to the particular subscriber. The system then selects from a set containing numerous, different advertising messages those items that fit the

subscriber and which also have "available allocation." From the advertising messages that can be transmitted, the next available advertising message is selected. In effect, advertisers buy the right to have their messages played a given number of times. If their available allocation of advertising play time has run out, they must replenish their account or their advertising message(s) will not be transmitted to subscribers.

Finally, the selected advertising message is affixed to the next generic message in the queue or to the applicable artist (composition) identity audio message. The system automatically links the advertising message, the generic or identity audio message and the subscriber selected content into a single data stream to be transmitted to the subscriber over the Internet. In constructing the stream, the system overlays the generic or identity audio message onto the music content so that, when delivered, the audio generic message and the audio content can both be heard by the subscriber simultaneously. The completed data stream is then delivered to the subscriber in a single, inseparable stream of data packets over the Internet.

Other features and advantages of the present invention will become apparent from the following description of the invention which refers to the accompanying drawings.

#### BRIEF DESCRIPTION OF THE DRAWING

For the purpose of illustrating the invention, there is shown in the drawings a form which is presently preferred, it being understood, however, that the invention is not limited to the precise arrangement and instrumentalities shown.

Figure 1 is a block diagram of the basic system hardware arrangement of the present invention.

Figure 2 is a block diagram of major software blocks of the present invention.

Figure 3 shows a block diagram of the software control and protocol flow suitable for implementing a portion of the preferred embodiment of the present invention.

#### DETAILED DESCRIPTION OF THE INVENTION

In general terms, the present invention comprises a software controlled CPU, e.g. a microprocessor, based repository in which the dossiers of a plurality of subscribers are stored and updated. The information contained in the dossiers includes the type of music that the subscribers enjoy, the buying habits of the subscribers and the musical selections previously or simultaneously made by the subscribers.

Preferably, the subscribers receive the programmed music and advertisements from the repository over the Internet. However, the invention is applicable to communications between system and subscribers that use non-Internet channels, e.g. cable,

direct broadcast, or any means of communication provided the method of communication permits delivery of an identified audio and/or audio video message to an identified specific subscriber. The specific musical material and advertisements transmitted may vary as a function of the information contained in the dossiers of the subscribers. In addition, the dossiers may change from time to time with a resulting change in music and advertisement programming. Further, the programmed music and advertisements may change as a function of the time of year or other conditions.

Referring to Figure 1, the physical hardware/software configuration of the present invention preferably comprises a central processing unit (CPU) 10 which interfaces via the Internet 20 with a plurality of subscriber operating PCs 12, 14 ... 16 (or other device capable of receiving individualized content for audio and/or video production) which respectively have speakers 12a, 14a ... 16a to play programmed music or other audio information which is transmitted to them via the Internet 20. As already explained, in accordance with the present invention, the music being transmitted over the Internet to the subscribers is bundled with targeted advertising material in the form of audio messages tailored to the subscriber or musical profile paid for by advertisers 18, 19 ... 21.

The CPU 10 may be any type of computer system, for example a mainframe, a server-based system of PCs, a stand-alone microprocessor and the like. The CPU 10 has the usual operator interface, e.g. a keyboard 22 and complement of memory and IO devices (not shown). Of significance here is that the CPU 10 maintains a plurality of databases including an advertisers/marketing criteria database 24 in which it stores the advertising preferences of the advertisers 18, 19 ... 21, e.g. the type of subscribers that these advertisers would like to reach, their geographic locations and the system usage privileges and/or credit balance of these advertisers.

The database 26 stores the advertisement content, i.e. the actual advertising copy of the various advertisers 18, 19 ... 21. Note that any one of the advertisers 18, 19 ... 21 can have several different audio messages stored for transmittal to different classes of subscribers 12, 14 ... 16.

The subscriber profile database 28 contains the actual profiles of the individual subscribers 12, 14, 16, specifying for each subscriber criteria as, for example, age, demographic data, education, sex, ethnic background, musical selections previously or simultaneously made by the subscriber, purchasing habits and the like. Finally, the large library of selectable/searchable music content is stored in the database 30. This database includes the musical work, the profile of the work, the audio identity of the artist and copyright holders, and an audio statement of the artist. Together, these databases enable the present invention to attain its objective of matching music with audio advertisement copy to be

transmitted to the individual subscribers.

The operation/control block 32 contains the executable portion of the program code which runs the CPU 10 and which controls the overall operation of the system of the present invention.

Figure 2 illustrates a representative (non-limiting) flowchart of the overall software functions performed by the CPU 10 of Figure 1. Proceeding from the starting/initialization software block 50, the program proceeds to decisional block 52 where it queries what major function is to be performed. If the major function is a response to a request from a customer for music, the program proceeds to the set of routines 54 which involve the servicing of a customer request and which are more fully described further on by reference to Figure 3.

Otherwise, the program proceeds to software block 56 to handle general housekeeping, database management and customer and business relations. At decisional block 58, the program further determines whether the requested task is to manage the databases or other functions. If database management, the program proceeds to block 60 to execute a series of program functions involving the creation or updating of the advertiser database (element 24 of Fig. 1) which contains the names of the advertisers, individuals at advertisers to be contacted, billing information, prepaid advertising time available for each advertiser and a range of other business information and criteria. Most importantly for the present invention, this database also specifies for each particular advertiser the type, i.e. the profile of the subscribers/listeners which the particular advertiser would like to target and the advertising audio content code for each target. It is not necessary to limit the specification to a narrow class of individuals. Several classes can be identified and prioritized. Moreover, each advertiser may have different renditions of audio advertising copy to be directed to different audiences, i.e. classes of listeners.

From block 60 the program proceeds to block 62 where it performs similar functions for the subscriber/listener database 28. For each subscriber that is being added to the database or whose profile is being updated, the program lists personal data including (as already mentioned) age, education, income, musical selections previously or simultaneously made by the subscriber, purchasing habits, etc. This database can also include a field in which the subscriber specifies the type or types of music that the individual prefers, to facilitate the system's ability to present to each individual a menu of music selection which best fits the individual's preferences and music taste.

Software block 64 attends to and handles the maintenance of the actual music content. Each piece of music is classified, categorized and included in the database in either analog or digital form for future transmission to the subscribers 12, 14 ... 16.

Similarly, at block 66 the program handles the main-

tenance and updating of the library of advertising copy, each piece of which has been submitted by one or another of the advertisers. A single advertiser may have stored one or several different advertisements.

While the inventors contemplate that this advertising copy will be in the form of audio/musical message, the invention is not so limited. Indeed, the invention contemplates that the advertising copy may be video information that can be played on the subscribers' computer monitors and include voice information that will play through the speakers of the subscriber's equipment. In sum, the program blocks 60, 62, 64 and 66 are responsible for the handling of all aspects of the creation, updating and modification of the large databases with which the CPU 10 of the present invention constantly communicates.

Alternatively, from decisional block 58, the program proceeds to decisional block 70 to determine whether it is necessary to take care of billing matters. If so, the program proceeds to block 72 where the program tallies accounts, listing the frequency of play and transmission of music and data stored in database 64 to subscribers. The program proceeds to block 60 to decrement advertising availability. Together, this information is useful, for example, for calculating (if necessary) royalty fees payable to the owners of the music and to provide "play" statistics for the music industry on a current and accurate basis. The block 72 further tackles the task of preparing billing data for advertisers. For example, the system may allow certain advertisers to operate without prepaid credit balances. In this case, as the advertisements of the particular advertiser are being sent to subscribers, an accounting is made of the total advertising air time used and that advertiser may be billed accordingly on a monthly, bimonthly or other basis.

Another software task of the CPU based system 10 is executed at software block 74 which is dedicated to the tasks of interfacing, via the Internet, with existing or potential subscribers and advertisers for purposes of signing up such subscribers and advertisers, providing information regarding billing data and available music, answering general inquiries through the running or an automatic voice mail system, a web page or the like.

From decisional block 70, the program also has the option of proceeding via decisional block 80 to block 82 which is responsible for the distribution of one or several free programs which may be used for controlling the local PCs 12, 14 ... 16 to play the received music and/or to interface with the CPU 10 (which may be made available through a web page on the Internet). Such programs downloaded from the web page, which operate in conjunction with the system of the present invention, provide various functions including allowing subscribers to automatically call up the CPU 10, automatically make music selections and the like.

Other functions provided by the software of the present invention are shown by proceeding from the decisional block 80 to block 84 which broadly desig-

nates the general class of miscellaneous functions performed in the system of the present invention. This includes, as shown in block 86, software which contains and carries out the protocols for creating packets of digital information which are to be transmitted to subscribers. Another function involves security which is handled by software block 88. Security includes the encoding and decoding of music and advertising copy that is transmitted over the Internet. It further includes encoding and decoding music in a manner that ensures that the ultimate subscribers can not separate the music from the advertising copy and/or copy it for their personal use and dissemination, in violation of licensing terms.

Software block 90 generally designates a portion of the program which interfaces with subscribers for the purposes of allowing subscribers to place orders for products or services that are advertised or presented in the advertising messages that are appended to the music. In well known manner, the various software routines eventually reach end block 67, so that the program may loop and return to the start block to permit the orderly and reliable operation thereof.

The specific task of responding to a subscriber's request for particular musical works and the delivery of that music to the subscriber is illustrated in the general software block diagram of Figure 3. At block 100, the program initiates a search for the specific piece of music or other data content the subscriber has requested. The program proceeds to software block 102 where the request for the particular music/information is recorded in the accounting database and an independently running subroutine at block 104 proceeds to create a "response packet" for the individual subscriber. Such a response packet typically consists of one or more pieces of music which has been encoded/encrypted for transmittal over the Internet, to which an advertiser's message for each piece has been appended as a leader or header thereof, along with a generic or music specific voice over. Also, a message may be appended at the end of each piece of music, for example, in the form of a statement from the artist, i.e. "a wrapper".

While the response packet is being prepared at block 104, the program proceeds to block 106 to determine the availability of the selection. If available, the program proceeds to block 108 pertaining to music data selection and block 110 for advertiser selection. If an audio message is authorized to be added, the program proceeds from block 110 to validate and attend to the audio message authorization. If authorized, the audio message is looked up at block 126 (from database block 66) and is added to the response packet at block 128. Block 130 registers the audio message delivery in the accounting database at block 130, as previously described. The program proceeds to block 124 which consists of a sequence of software instructions that are responsible for adding the response packet to the queue at block 104.

As described above, simultaneously, block 108 validates content authorization by prohibiting replay of the same music in a single request and limiting the number of requests to a programmed limit, i.e., 10 selections. If the request is validated, the program proceeds to collect the musical work(s) selected and its related generic or individualized identity audio message at block 112 and 114. The program then delivers the partial response packet at block 124 where it is appended to the audio message packet and delivered to block 104 ready to receive further response packets, if any, and for delivery via block 10 to subscribers ... 12, 14, 16.

However, if no authorization to provide a particular type of response packet is noted, the program creates at software block 118 an "access denied" message which is then transmitted without any music or other data content (other than a request to select another offering) to the subscriber at block 124. Simultaneously, a record of the inability to deliver the particular subscriber selection is registered in software block 122.

Thus, the present invention achieves its objectives by providing a software controlled microprocessor based repository in which the dossiers of all advertisers are stored and updated. The information contained in the dossiers contains the amount of advertising purchased, the amount used and the amount remaining to be used ("available allocation"), a specification of the desired consumer profile, a specification of the category of product or service to be advertised, a specification of any territorial or local time requirements or preferences, and a key to the location of the audio advertising content.

The present invention includes a software controlled microprocessor based repository in which all site content is stored and updated in either or both digital or analog form for either audio or audio/video delivery. Each item of content is catalogued defining the nature or category of the content, the identity of the source, the profile of the expected consumer or subscriber, the category of any product or service which is not to be annexed to the content, and any limitation on the availability of the content. Content is converted to a digital form for delivery over the Internet or other communication medium permitting individualized delivery. Content is encoded to prevent unauthorized duplication and to identify the subscriber to whom the content is to be delivered.

The present invention includes a software controlled microprocessor based repository in which all advertisements are stored and updated in either digital or analog form ready to be linked and transmitted. Advertisements are converted to a digital form for delivery as audio messages over the Internet or other communication medium permitting individualized delivery.

The present invention includes software controlled microprocessor based repository of digital audio content which contains generic audio messages and/or identity audio messages.

The subscriber selects the content which he or she desires to receive, and the content is placed in a queue. Based on the profile of the content, a determination is made by the system as to which advertising messages may be delivered. The system determines whether the permitted advertising message has available "allocation" and whether other required parameters have been met. From the remaining filter, the next available advertising message is selected.

The selected advertising message is then affixed to the next generic message in sequence or to the applicable identity audio message and is placed in a queue. The System automatically links the advertising message, the generic or identity message and the subscriber selected content into a single data stream along with other such streams pursuant to the subscriber's request. In constructing the stream, the system overlays the generic or identity message onto the content so that, when delivered, the audio generic or identity message and the audio content can both be heard by the subscriber simultaneously. The completed data stream, including all selections, is then delivered to the subscriber in a single stream of packets over the Internet or other communication medium, permitting individualized delivery.

There is no requirement for a one-to-one relationship between a musical piece and a class of subscribers. For example, a particular advertisement can be classified to be played to a first class of subscribers as a first choice, to a second class of subscribers as a second choice and so on. In this manner, an advertiser desiring that its messages reach broader audiences may also earmark its advertisements to secondary classes of listeners, thus increasing the versatility and usefulness of the present invention.

Although the present invention has been described in relation to particular embodiments thereof, many other variations and modifications and other uses will become apparent to those skilled in the art. It is preferred, therefore, that the present invention be limited not by the specific disclosure herein, but only by the appended claims.

#### Claims

1. A method of transmitting programmed information to a plurality of subscribers, comprising:

- (a) creating a first database containing a large number of discrete data units each of which has a related profile;
- (b) creating a second database containing a variety of discrete advertising messages each of which has a related profile;
- (c) receiving requests for the data units from the plurality of subscribers, and enabling each subscriber to select a desired one of said data units;

- 5 (d) appending to the requested data units at least one of said advertising messages based upon a matching of profile criteria to create a composite response packet containing an advertising message and a data unit; and
- (e) transmitting the composite response packet to the requesting subscriber.
- 10 2. The method of claim 1, including transmitting the response packets to the subscribers over the Internet.
- 15 3. The method of claim 1, including transmitting the response packets to the subscribers over a cable system.
- 20 4. The method of claim 1, including transmitting the response packets to the subscribers over a satellite based communication system.
- 25 5. The method of claim 1, in which the data units are musical works.
- 30 6. The method of claim 5, including appending the advertising message to the musical work in the form of a voice over a leading portion of the musical work.
- 35 7. The method of claim 5, including appending the advertising message to the musical work in the form of a voice over a trailing portion of the musical work.
- 40 8. The method of claim 5, in which the advertising message is in the form of an audio message.
- 45 9. The method of claim 6, including classifying the subscribers into predetermined subscriber classes.
- 10. The method of claim 9, in which the criteria includes the type of music selected by the subscriber.
- 11. The method of claim 9, including associating each piece of advertising message with at least two subscriber classes on a prioritized basis.
- 50 12. The method of claim 5, further including creating a credit account for at least two of the advertisers and storing in each credit account an "available allocation" for that advertiser, designating an available prepaid advertising credit amount.
- 55 13. The method of claim 1, including storing the data units in one of analog and digital formats.
- 14. The method of claim 5, including appending to the composite response packet generic audio messages.

15. The method of claim 14, in which the generic audio message is a message which identifies the artist and/or copyright holders of the musical work.

16. The method of claim 5, including receiving from subscribers information responsive to audio messages in the form of orders for products and/or services which are offered by the advertising messages. 5

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17. The method of claim 5, including providing a software facility for the handling of sales off product to subscribers.

18. The method of claim 5, including providing on the Internet a web page by which subscribers' communications with the first data base is enabled. 15

19. The method of claim 5, including combining the musical work with the advertising message in a manner so that the musical work cannot be separated from the advertising messages by subscribers. 20

20. The method of claim 5, including packaging selected ones of the response packets so that each successive playing of the musical work results in the subscriber hearing a different advertising message. 25

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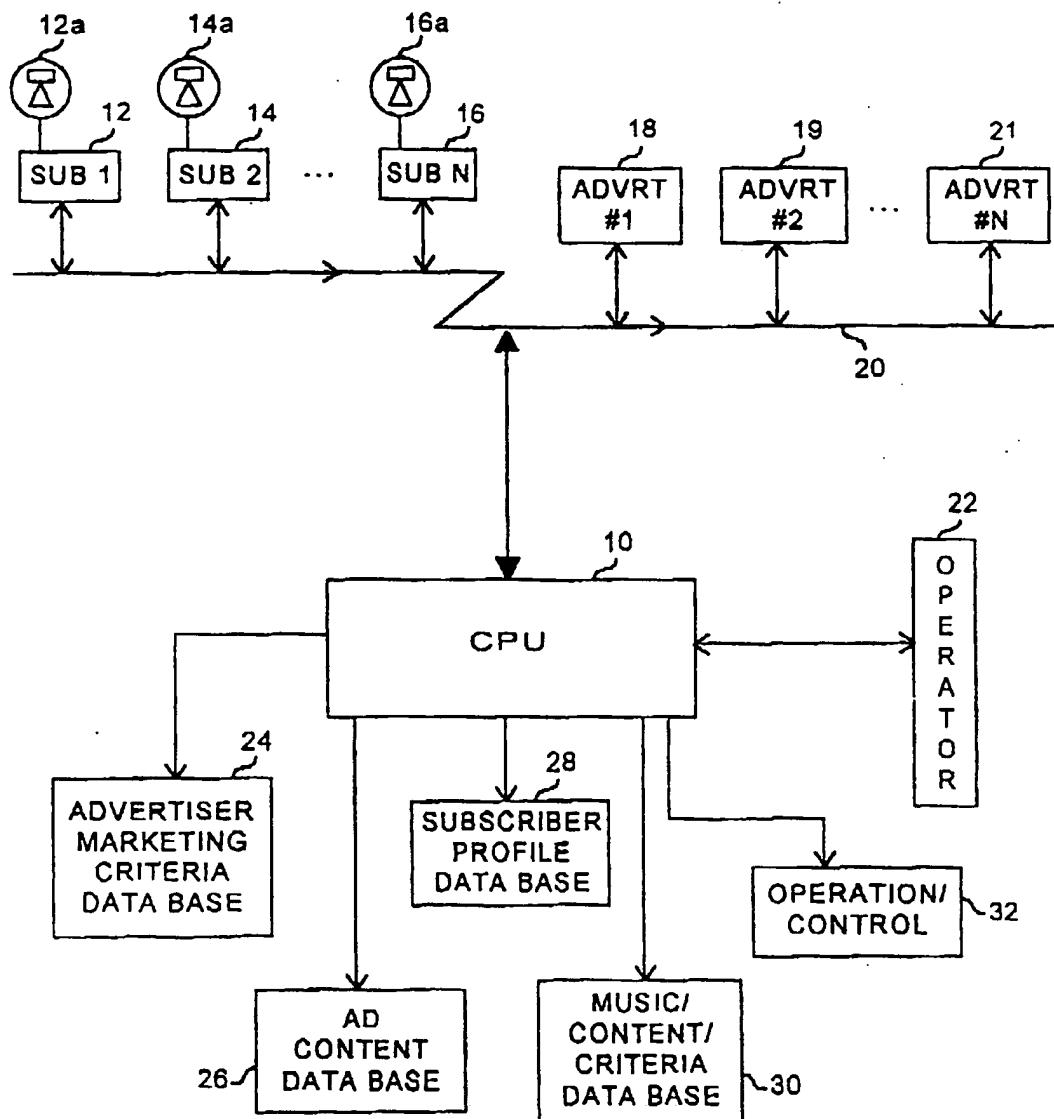
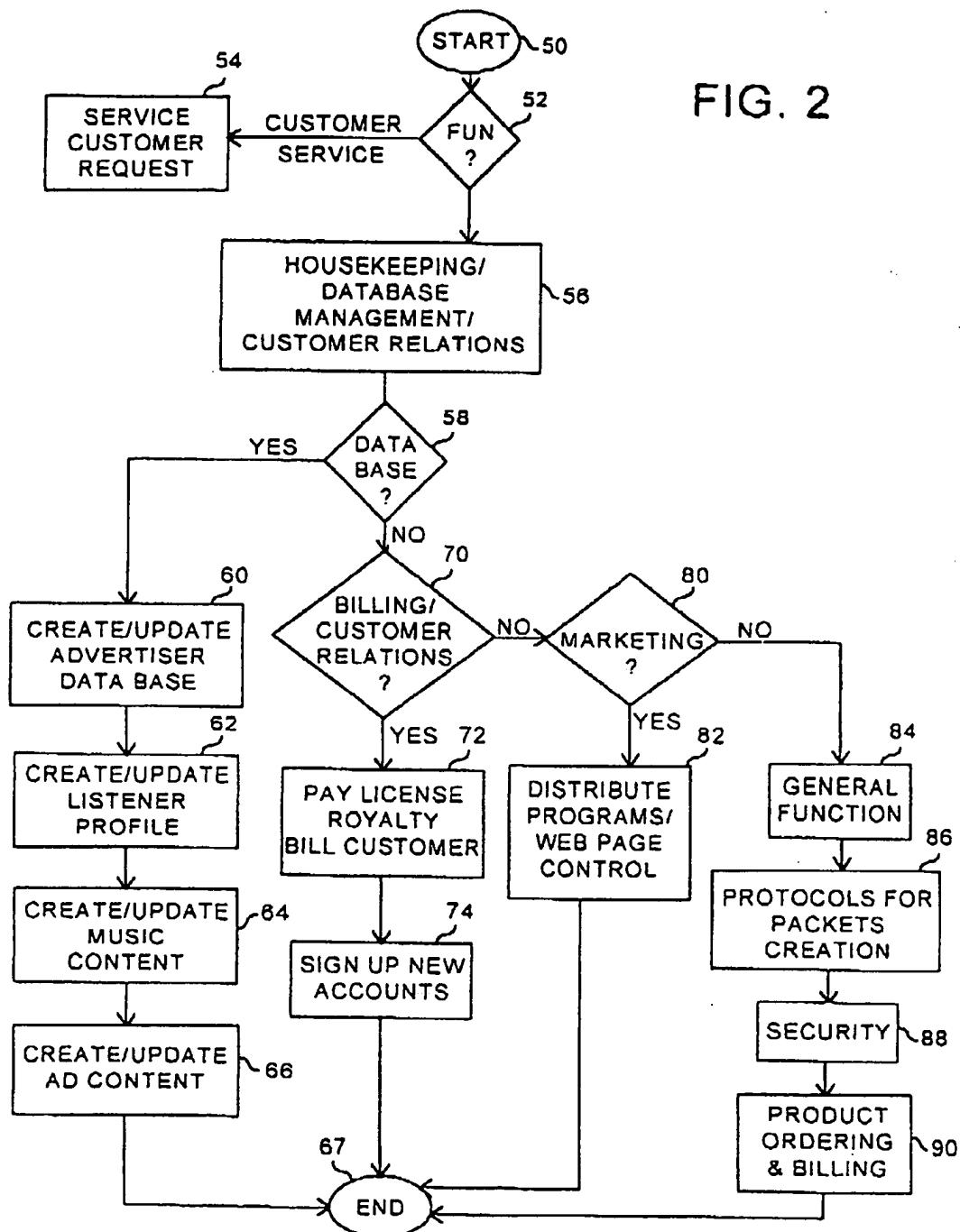


FIG. 1

FIG. 2



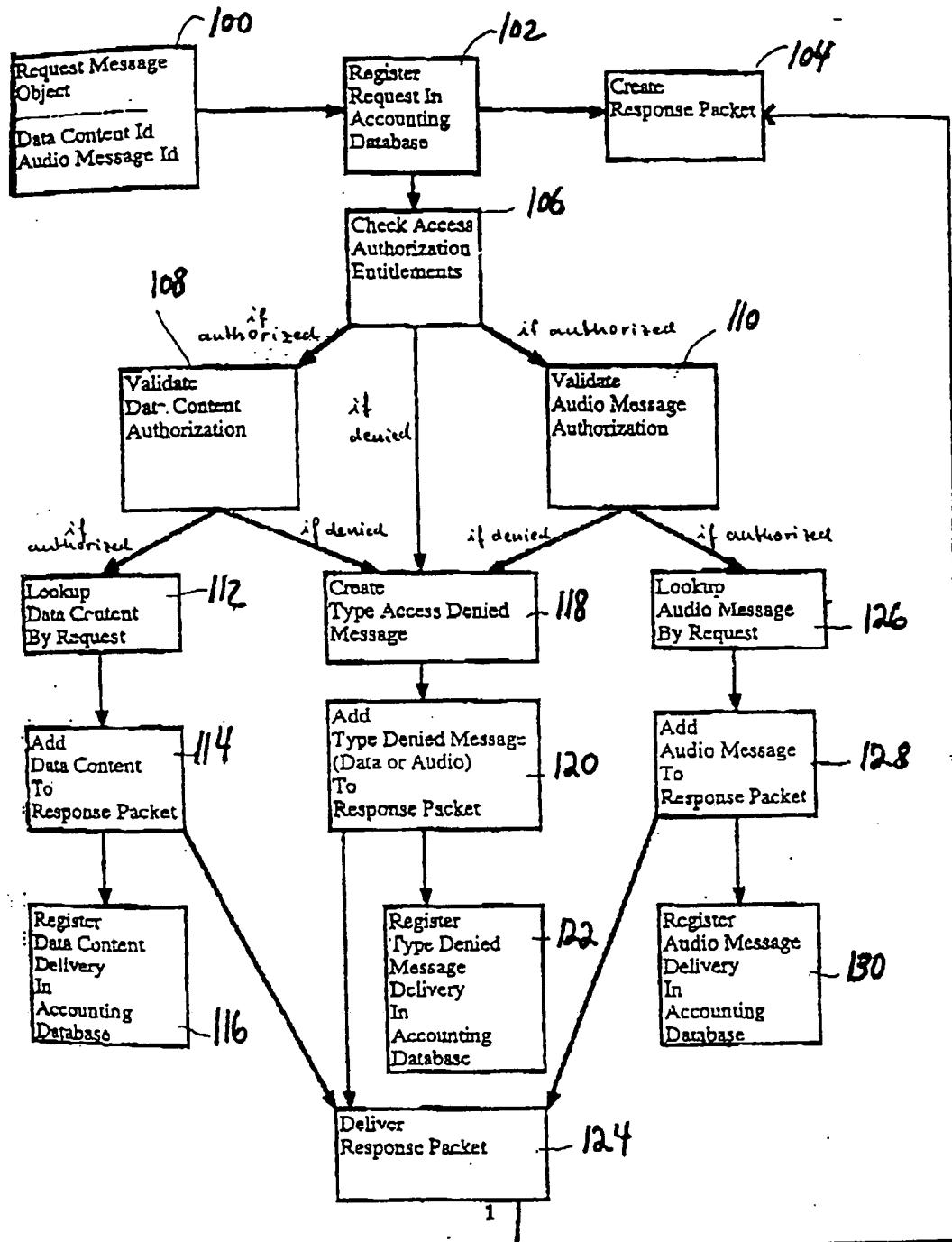


FIG. 3



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(57) A system and method for delivering programmed music and targeted advertising messages to Internet based subscribers includes a software controlled microprocessor based repository in which the dossiers of a plurality of the subscribers are stored and updated, musical content and related advertising are classified and matched. A subscriber has an appropriate microprocessor based device capable of selecting information and receiving information from the Internet. The subscriber receives the programmed music and matched advertisements from the repository over the Internet.

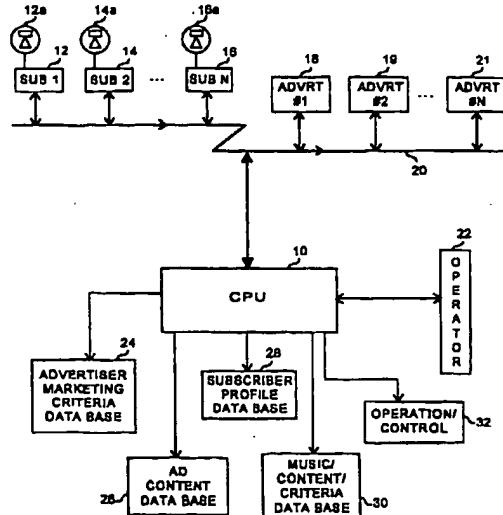


FIG. 1

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European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number  
EP 97 12 1647

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
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A	YAO J -H ET AL: "MPEG-BASED AUDIO-ON-DEMAND EXPERIMENT FOR THE INTERNET" GLOBAL INFORMATION INFRASTRUCTURE (GII) EVOLUTION: INTERWORKING ISSUES, INTERWORKING '96. THIRD INTERNATIONAL SYMPOSIUM ON INTERWORKING NARA (JAPAN), OCT. 1-3, 1996, 1 October 1996 (1996-10-01), pages 503-511, XP000754596 RAO;S; UOSE; H; LUETCHFORD; J C (EDS ) ISBN: 90-5199-290-4 * the whole document *	1,2,5	
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	---	-/-	
<p>The present search report has been drawn up for all claims</p>			
Place of search  THE HAGUE	Date of completion of the search  22 October 1999	Examiner  De Haan, A.J.	
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
<small>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</small>			



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DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
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			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
<p>The present search report has been drawn up for all claims</p>			
Place of search	Date of completion of the search	Examiner	
THE HAGUE	22 October 1999	De Haan, A.J.	
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	
<small>EPO FORM 1503 03/82 (P04001)</small>			

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

22-10-1999

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